299-W11-82 (A7324)

Log Data Report

Borehole Information:

Borehole:	299-W11-82 (A7324)		Site:	Near the 216-T-26 Crib	
Coordinates (Plant)		GWL[1] (ft):	Not available	GWL Date:	
North	East	Drill Date	TOC[2] Elevation	Total Depth (ft)	Type
566934	136408	Oct. 1982	Not available	70	

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Steel	2.5		8.0	5/16	0	70

Borehole Notes:

The casing has a stickup of 2.5 feet and a measured thickness of about 5/16 inch.

Logging Equipment Information:

Logging System:	Gamma 2B		Type:	SGLS (35%)
Calibration Date:	09/00	Calibration Reference:	GJO-2001-245-TAR	
		Logging Procedure:	MAC-HGLP 1.6.5	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1				
Date	6/15/01				
Logging Engineer	Musial/Pearson				
Start Depth (ft)	70.5				
Finish Depth (ft)	2.5				
Count Time (sec)	100				
Live/Real	L				
Shield (Y/N)	N				
MSA Interval (ft)	0.5				
ft/min	n/a				
Pre-Verification	B0002CAB				
Start File	B0002000				
Finish File	B0002136				
Post-Verification	B0002CAA				

Logging Operation Notes:

Reported logging depths are from the top of the surface casing.

Analysis Notes:

Analyst:	Sobczyk	Date:	07/05/01	Reference:	MAC-VZCP 1.7.9 Rev. 2

The pre-run and post-run verification spectra were evaluated and found to be within acceptance criteria. Individual spectra were processed in batch mode using APTEC Supervisor. Concentrations were calculated in EXCEL, using parameters determined from analysis of calibration data collected in August 2000. The casing configuration was described in PNL-8800. A casing thickness of 0.322 in. was assumed for the 8-in. casing because this is the published value for ASTM schedule-40 steel pipe (a commonly used casing material). Zero reference is the top of the casing. No water correction was needed or applied. Dead time was above 10% in the following intervals: 37.0 through 39.0 ft, 47.0 through 47.5 ft, and 50 through 52.5 ft. Maximum dead time was approximately 27%.

Log Plot Notes:

Separate log plots are provided for gross gamma and dead time, naturally occurring radionuclides (^{40}K, ^{238}U, and ^{232}Th), and man-made radionuclides (^{137}Cs, ^{60}Co, ^{154}Eu, and ^{152}Eu). For each radionuclide, the energy value of the spectral peak used for quantification is indicated. Unless otherwise noted, all radionuclides are plotted in picocuries per gram (pCi/g). The open circles indicate the minimum detectable activity (MDA) for each radionuclide. Error bars on each plot represent error associated with counting statistics only and do not include errors associated with the inverse efficiency function, dead time correction, or casing and water corrections. These errors are discussed in the calibration report. A combination plot is also included to facilitate correlation.

Results and Interpretations:

Cs-137 and Eu-154 were the man-made radionuclides that were detected. Cs-137 occurred between 3.0 and 16.0 ft, at concentrations less than 10 pCi/g, and between 22 and 24 ft, at concentrations less than 1 pCi/g. Cs-137 occurred between 35 ft and the bottom of the borehole. In this interval, concentrations approached 1,000 pCi/g at 37.5 and 51.5 ft. Eu-154 occurred between 36 and 38 ft, at concentrations less than 3.0 pCi/g, and near the detection limit of 0.3 pCi/g at 57.5 and 65 ft. The relatively high concentrations of Cs-137 below about 37 ft correspond with an increase in K-40 from about 12 pCi/g to about 20 pCi/g. This increase in apparent K-40 activity may correspond with the Hanford H2.

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[1] GWL – groundwater level
[2] TOC – top of casing

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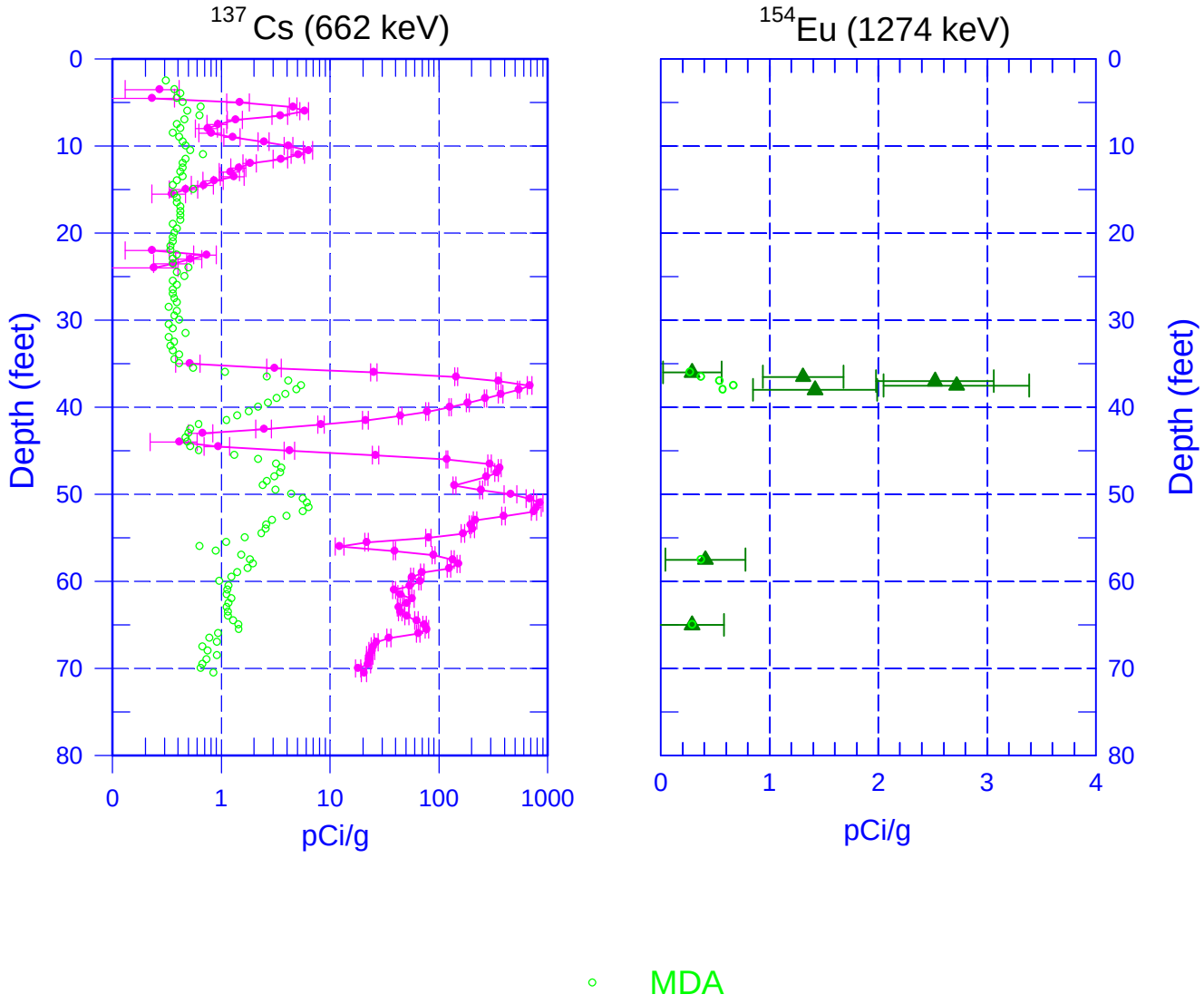
Man-Made Radionuclide Concentrations



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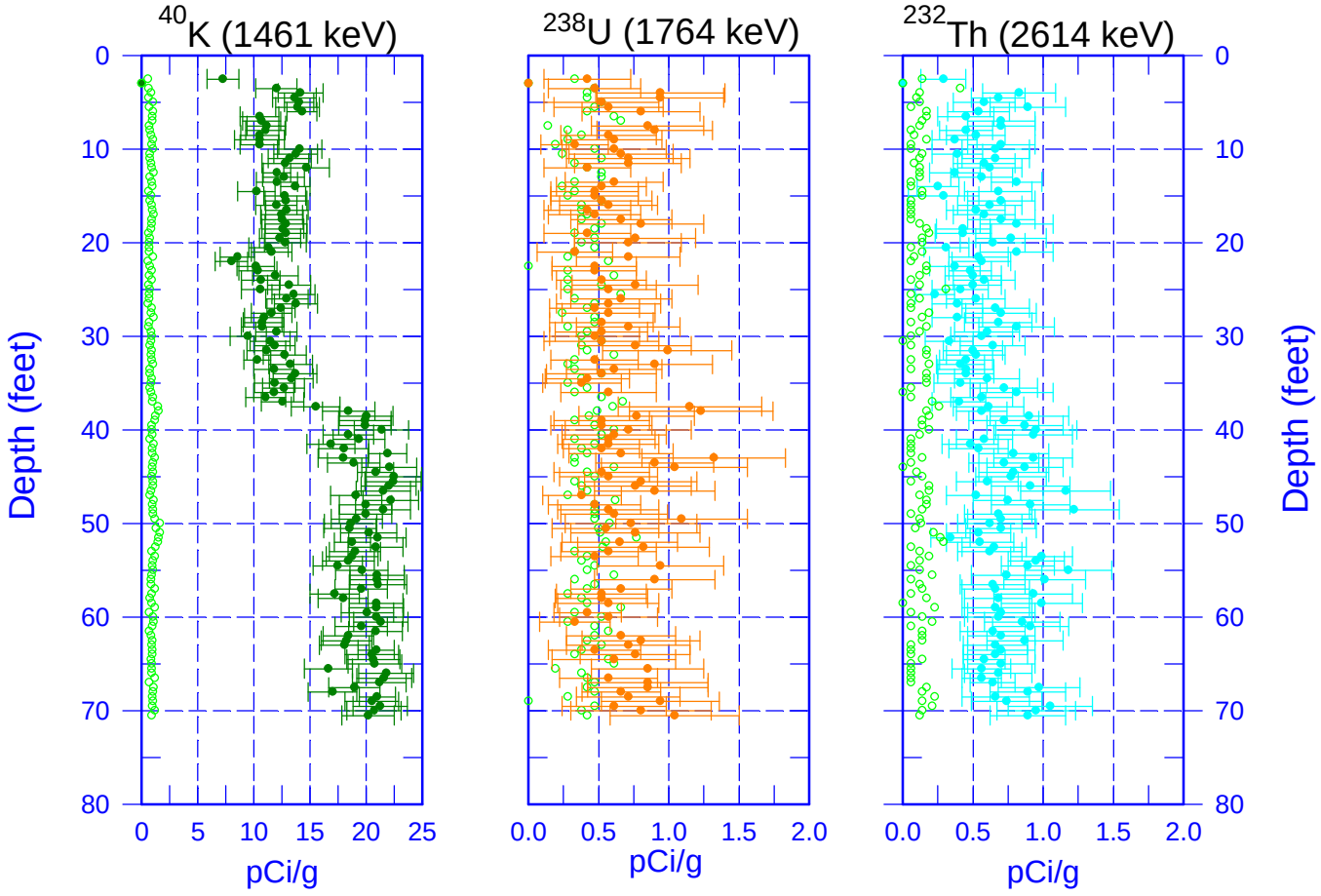
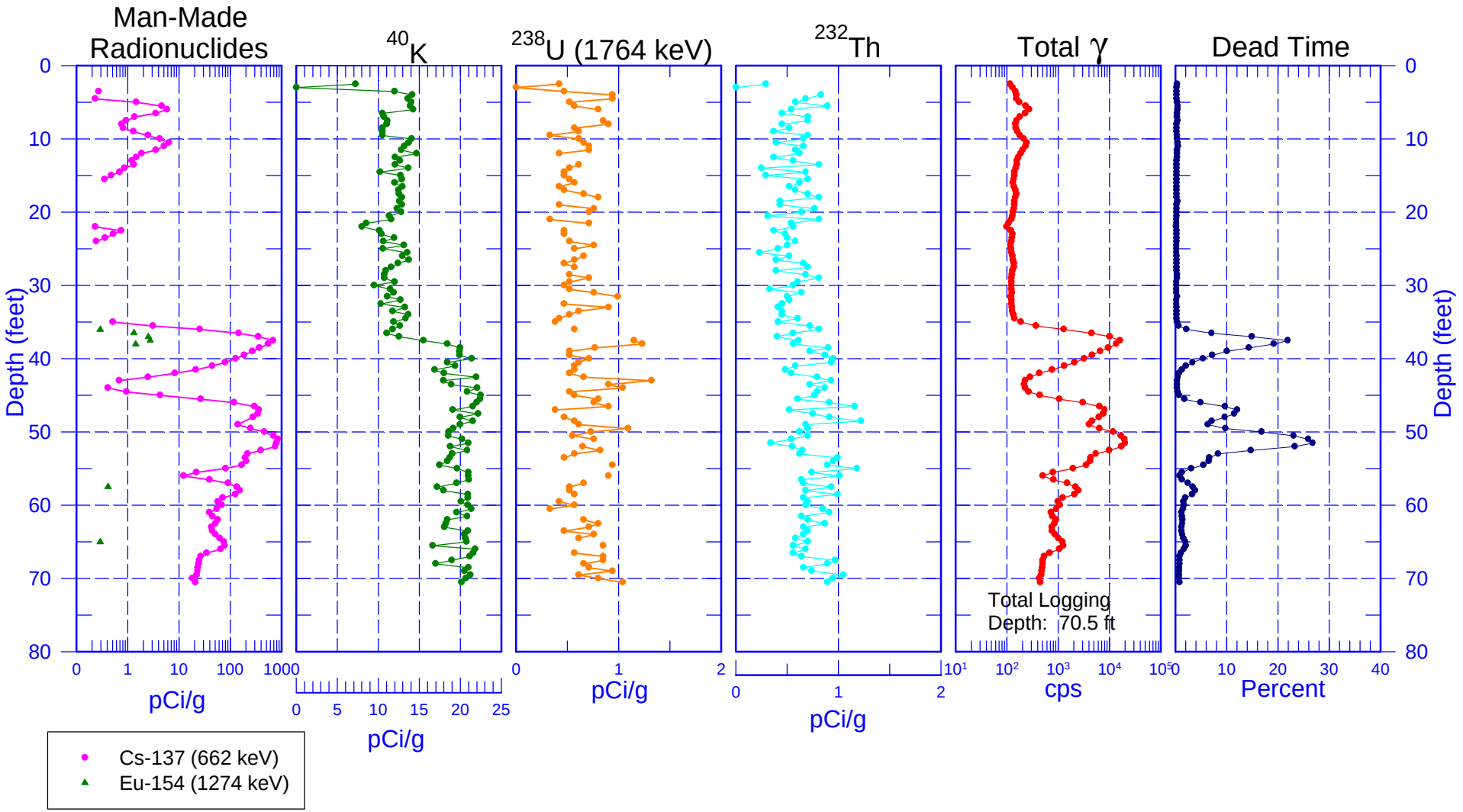
Natural Gamma Logs



299-W11-82 (A7324)
Combination Plot



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Total Gamma & Dead Time